

**Vessels**

The Port State Control program targeting matrix was established by Coast Guard Headquarters based data from all Marine Safety Offices in the United States, including Guam and Puerto Rico. This matrix takes into account the compliance record of the vessel, the owner/operator, the classification society, and the flag state to provide an assessment of the risk that the vessel poses to U.S. waters. All vessels arriving in a U.S. port within the zone are subjected to this assessment that results in the assignment of a boarding priority level.

An analysis of U.S. vessel casualties shows that equipment failures, not involving a loss of steering or propulsion, are the most common type of casualty. This assessment does not show the considerable role that human factors play in the causal chains of most casualties. Allisions, groundings, fires, and collisions most often occur on uninspected commercial vessels. This is primarily due to the reduced regulatory oversight related to inspections, licensing, and manning for such vessels.

Figure 4-1 also shows the significant differences in reported casualties among the various vessel types. This zone has a large amount of commercial freight and fishing traffic, and many of the reported casualties are aboard these vessels. Many of them were equipment related casualties, remedied before more catastrophic consequences were allowed to occur. Passenger vessel casualties, while not the largest source reported, have significant consequences, and are therefore considered to be high risk.

Figure 4-2 shows that 42% of casualties are the result of obvious human factors. What this does not capture is the underlying human factors that may be causal in many of the other categories. Analysis at the national level indicates that human factors contribute to 80% of casualties.

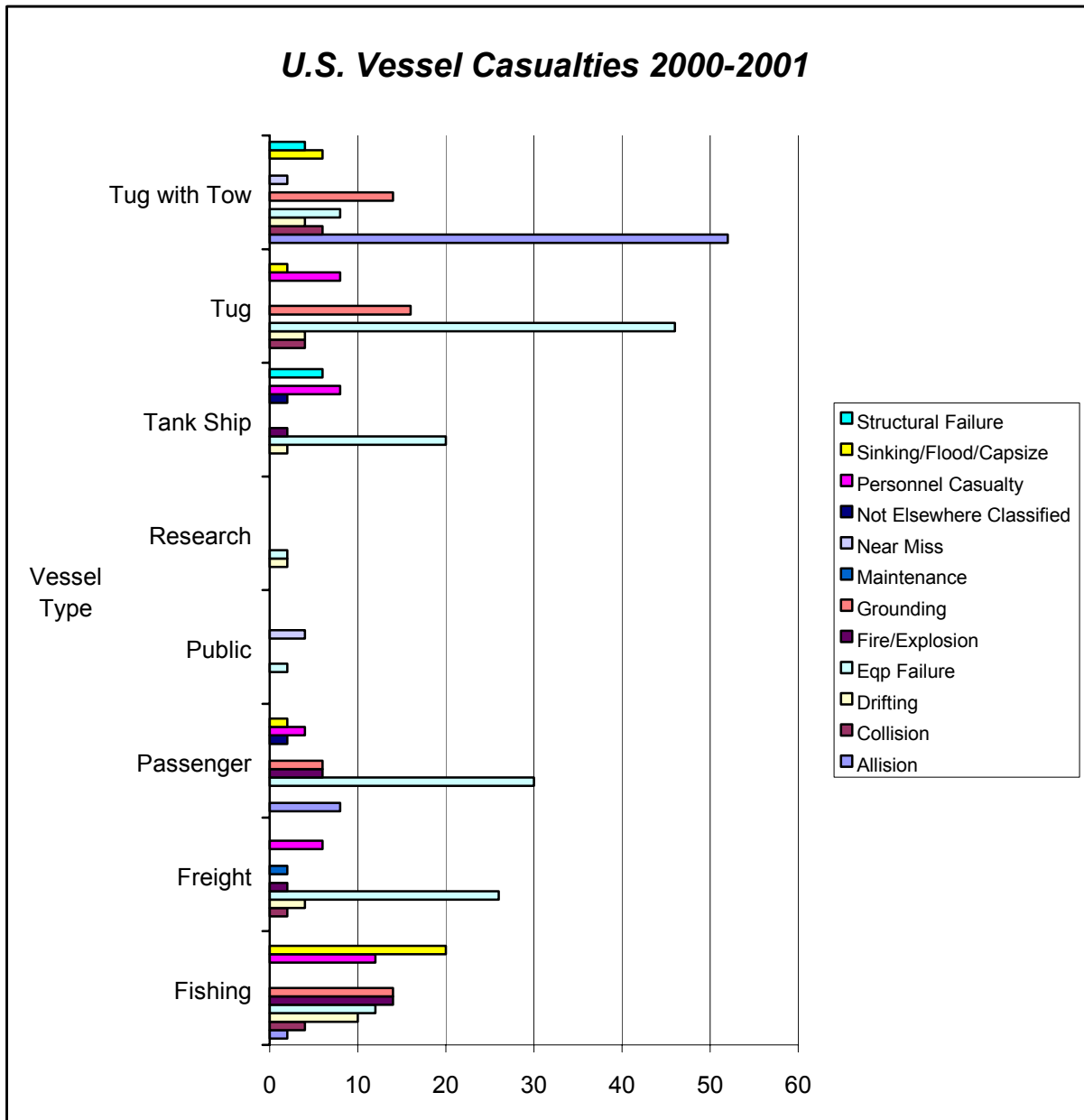
**Passenger Vessels**

Passenger vessels, which make up almost 50% of the fleet of vessels for which MSO Puget Sound is responsible for inspecting, carry over 28 million passengers annually, and operate at increasingly higher speeds. Many new vessels are being built in the Pacific Northwest.

**Washington State Ferries**

A significant subset of passenger vessels, the Washington State Ferry system is a large entity demanding specific attention. WSF operates 29 vessels and carries over 26 million passengers on over 180,000 annual transits. Although the operational record of this organization is very good (potentially indicating a low likelihood of occurrence of a future major casualty), the consequences of a casualty, given the high passenger exposure, requires that the Coast Guard continue to keep WSF as an area of emphasis.

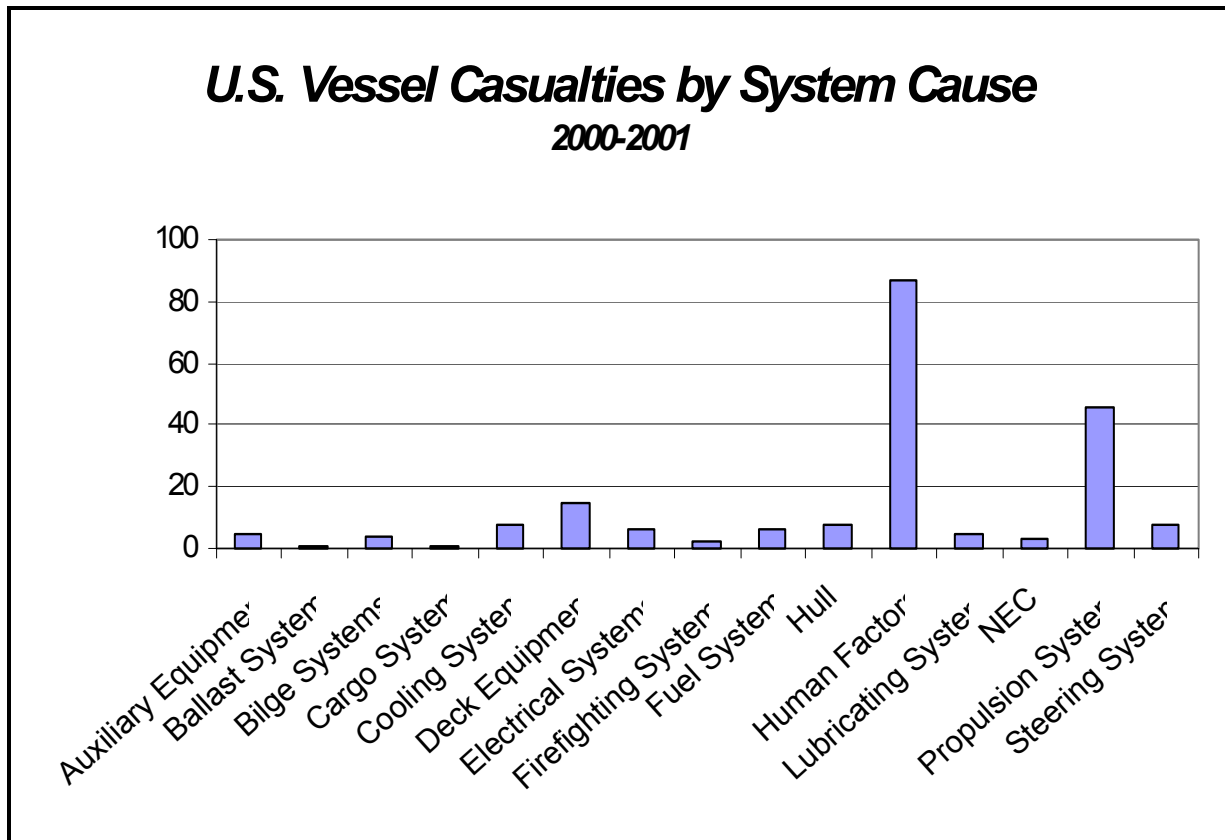
Figure 4-1



### DUKW Operations

These unique World War II vintage vessels provide a novel small passenger vessel experience but also present some safety challenges since they were originally designed as a military vehicle, not a passenger vessel. The local DUKW fleet of 4 vessels is predicted to increase to 10 over the next couple of years.

Figure 4-2



### **Tank Vessels**

Though mitigated by a deep and wide waterway, improvements in crew competency, tug escorts and the oversight of VTS and pilots, the inherent hazards of the transportation of a significant volume of oil, compounded by the length of the transit to terminal, and the number of arrivals (over 1 per day on average) means that MSO Puget Sound must continue to be vigilant in ensuring the safety of these operations.

### **Fishing Vessel Safety**

Commercial fishing continues to rank at or near the top of the list of most hazardous occupations in the United States. A 1997 U.S. Coast Guard report indicates approximately 42% of maritime industry fatalities occur in the commercial fishing segment. U.S. commercial fishing industry vessel safety standards are lower than for other domestic commercial vessels, and lower than international standards for fishing vessels. However, many fishermen oppose additional regulation because of their concerns about implementation costs.

The safety risk drivers associated with the commercial fishing industry are dynamic and often regional in nature. Different operating conditions, and varying vessel/gear/fishery combinations create different safety problems. The Washington State based commercial fishing fleet's distinct components range from "mom and pop", close to shore catcher vessels, to large factory trawlers

which engage in fishing and processing operations hundreds of miles off shore in inclement weather and sea conditions.

Critical factors considered in assessing risk associated with the Washington State based local and distant water fleet include, but are not limited to:

- ◆ Crew competency
- ◆ Distance the vessel will operate offshore
- ◆ Number of people aboard
- ◆ Size of vessel
- ◆ Intact stability
- ◆ Weather/ Season (fair to extreme)
- ◆ Availability of assistance
- ◆ Fishery management regime (derby style, quota)
- ◆ Nature of work:
  - ◆ Towing nets
  - ◆ Setting pots
  - ◆ Open hatches
  - ◆ Handling heavy equipment on deck
  - ◆ Variable loading conditions at sea

## **Vessel Security**

As a result of the terrorist attacks of September 11, 2001, the Coast Guard implemented heightened security measures to guard against the use of a commercial vessel as a terrorist instrument. Such actions could involve large or high-speed vessels entering, departing, or shifting berths within a port. The threat posed by these actions could be related to:

- ◆ The infiltration of terrorist members into a vessel's assigned crew
- ◆ Terrorist stowaways that board the vessel undetected while in port
- ◆ Terrorists boarding a passenger vessel (as passengers)
- ◆ Terrorists or activists boarding a vessel while underway

With the many passenger vessel operations in the region the risk exposure is easy to identify. However, before 9/11 there was very few preventative security measures on the passenger vessels not engaged in international voyages. The challenge of increasing security on ferry operations is that most security measures, such as those used on a cruise ship, would be a hindrance to ferry operations where providing expeditious movement of people and vehicles is an integral part of the business.

For deep draft vessels calling from sea a prerequisite for entry into a Puget Sound Port is the submission of all required arrival information, including cargo and crew/passenger information at least 96 hours prior to arrival at their intended berth or anchorage. This information is required well in advance in order to facilitate adequate security screening.

## Casualties

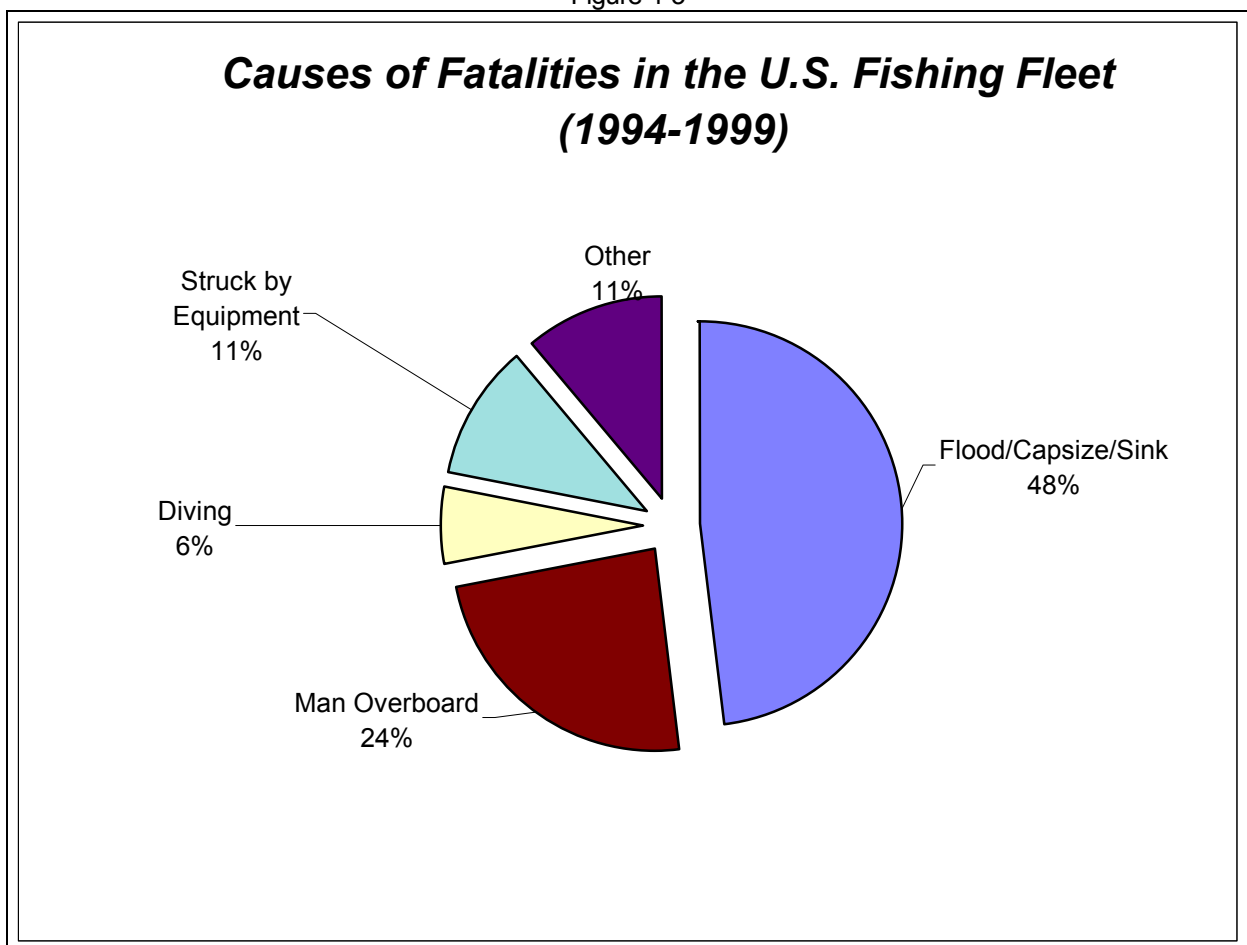
Uninspected commercial vessels such as tugs, fishing vessels, and construction/general purpose vessels consistently have the lowest rates of compliance with pollution prevention regulations.

Most facilities have a fairly high compliance rate, and relatively few spills. Most of the spills occurring at regulated facilities have not been related to any failure to comply with Coast Guard regulations.

Tank vessel and other deep draft spills for the past 3 years have been from cargo operations, rather than the result of groundings or power loss.

A 1999 headquarters analysis of casualty data identified the number one cause of commercial fishing fatalities to be flooding/capsizing/sinking, followed by falling overboard and being struck by equipment. Data for the Pacific Northwest and Alaska is similar.

Figure 4-3



Source: (USCG. 1999. "Analysis of fishing vessel casualties 1994-1998." Washington D.C.: U.S. Coast Guard

Seventy-eight percent of the fishing vessels sustaining serious casualties (fatalities and/or vessel loss) in the 13<sup>th</sup> and 17<sup>th</sup> Coast Guard Districts did not have a Commercial Fishing Vessel Safety Examination Decal.

The leading contributing factors to fishing vessel casualties are: (1) inadequate preparation for emergencies, (2) poor vessel and/or safety equipment conditions, and (3) lack of awareness of or ignoring stability issues.

## **Vessel Traffic Service**

As the sector operator monitors the traffic he or she must be attuned to the factors affecting the vessel and the consequences of the combination of factors acting on the vessel and the operator. These factors include the maneuvering characteristics of the vessel, the weather, the effect of the weather on the vessel and the operator's ability to see, the number of people in the pilothouse, the experience level (both driving vessels and operating in the area) of the person operating the vessel, the amount of time the vessel operator may have been working (fatigue possibility), the language skills of the operator, whether the person speaking on the radio is actually the person operating the vessel, the ability of the operator to notice subtle changes in aspect of his or her vessel based on visibility and speed of the vessel and the construction of the pilot house.

Virtually all participant vessels operate within the regulations, allowing the sector operators to quickly identify non-routine situations and intervene before vessels get in extremis.

## **Credentialed Personnel**

Reports of positive drug tests are not only steady but also inevitable since the behavior of mariners is but a reflection of societal behavior at large. The Coast Guard investigates illegal drug involvement by credentialed mariners to ensure that mariners serving in safety sensitive positions are not putting the passengers, crew, cargo, vessel, or themselves in harm's way.

The largest group of non-drug related incident investigations involve negligent vessels operations (i.e. groundings/allisions) and violations of the navigation rules (Rules of the Road). These most often occur within the uninspected vessel fleet.

## **Cargo**

### **Containers**

The container inspection program was initially developed to focus on ensuring that shippers of hazardous materials were complying with the labeling, placarding, packaging, stowage, and manifest regulations. However, in the post-9/11 environment, this authority also makes it necessary for the Coast Guard to inspect containers for Homeland Security purposes.

## **Explosive Loading**

The risks of carrying explosives by ship are well established, and consequently it is a well-regulated activity. One need only recall the devastation that resulted from the explosion of the French freighter Mont Blanc, carrying 5,000 tons of TNT to realize the dangers involved in the transport of explosives. The tremendous blast ripped through the sleepy town of Halifax, Nova Scotia. The explosion destroyed 3,000 dwellings, killed more than 1,600 people and injured 9,000.

The timely and safe movement of supplies is one of the most important aspects of warfare, yet it is frequently overlooked. The smooth movement of cargoes - in and out of ports in wartime - is an important task and often affects strategy and tactics. The management of these important logistical functions allows the United States and its allies to move supplies without delays or disorder.

## **Facilities**

The Facility Safety and Security program originally emphasized safety, but has been expanded to include the safeguarding of ports, harbors, vessels, and waterfront facilities from accidents, negligence, terrorism, and sabotage. Port safety and security are closely related, mutually supportive and are often conducted concurrently in field operations.

Existing regulations for designated waterfront facilities, cruise ship passenger terminals, and oil or bulk hazardous materials facilities address security issues in varying degrees depending on the type of facility. The U.S. Code of Federal Regulations (CFR) places the primary responsibility for facility physical security on the facility owners and operators, who are required to take all necessary precautions to protect their facilities. Additionally, Title 33 CFR, Part 6 gives the Captain of the Port broad authority to ensure the security of the port, including the promulgation of local regulations for the protection and security of waterfront facilities.

Since September 11, designated waterfront facilities in the Puget Sound area of responsibility have been assessed for security discrepancies by a detail that evaluated each facility's requirements based on potential hazards associated with that facility, and the security measures in place. Evaluation of this information allowed the creation of a comprehensive matrix that describing the facilities by type of facility, physical and procedural security, economic significance, and population density near the facility. The overall discrepancies found are represented in Figure 4-4.

The security guidelines issued by Pacific Area provides guidance on evaluating the level of security measures that should be in place at any given time. Three levels are described:

- ◆ Level I: the degree of security precautions to take when the threat of an unlawful act against a vessel or terminal is, though possible, not likely.
- ◆ Level II: The degree of security precautions to take when the threat of an unlawful act against a vessel or terminal is possible and intelligence indicates that terrorists are likely to be active within a specific area, or against a type of vessel or terminal.
- ◆ Level III: The degree of security precautions to taken when the threat of an unlawful act against a vessel or terminal is probable or imminent and intelligence indicates that terrorists have chosen specific targets.

Figure 4-4

